

Abstract

Current is delivered to a load using an open-loop boost circuit topology that is suitable for LED driver applications. An inductor in the circuit is charged when a transistor is active during a first operating phase. The inductor delivers current to the load
5 when the transistor is inactive during a second operating phase. A ramp circuit is enabled by a feed-forward circuit that detects when the inductor enters the charging cycle. The charging time of the inductor is controlled by a comparator that selectively disables the transistor in response to the ramp voltage. The slope of the ramp is adjusted by an external component (e.g., a resistor) such that the charging time is inversely proportional
10 to the square of the input voltage. The value associated with the inductor can be relatively small, and the boost circuit is arranged to operate over a wide range of operating frequencies.

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